

**IN THE CLAIMS:**

Claims 24, 29, 35, and 37 have been amended. Claims 38 and 39 have been added. Applicant requests that the amendments be entered. All claims currently pending and under consideration in the referenced application are shown below. This listing of claims will replace all prior versions and listings of claims in the application.

**Listing of Claims:**

1-23. (Canceled)

24. (Currently Amended) A method for manufacturing a microelectrophoresis chip, comprising:

- (a) forming a mold using lithography, the mold being the reverse of a desired pattern of one or more channels, each channel having a central region between two edges;
- (b) casting or imprinting the channels in a polymeric substrate as a negative impression replica of the mold;
- (c) fusing the polymeric substrate with the channels formed therein to a solid support;
- (d) forming a plurality of electrodes positioned in a spatially-dispersed array within each channel, wherein at least one cathode or anode is disposed in the central region of a channel the array comprises a plurality of electrodes defining a perimeter of the array and at least one electrode disposed in a central region within the perimeter of the array.

25. (Previously Presented) The method for manufacturing a microelectrophoresis chip according to claim 24, wherein each channel is from 1 to 10 $\mu$ m in depth.

26. (Previously Presented) The method for manufacturing a microelectrophoresis chip according to claim 24, wherein the chip has a plurality of channels.

27. (Canceled)

28. (Previously Presented) The method for manufacturing a microelectrophoresis chip according to claim 24, wherein the plurality of anodes and the plurality of cathodes are disposed to generate electric fields in at least two non-parallel directions.

29. (Currently Amended) A method for manufacturing a microelectrophoresis chip, comprising:

- (a) forming a mold using lithography, the mold being the reverse of a desired pattern of one or more channels, each channel having a central region between two edges;
- (b) casting or imprinting the channels in a polymeric substrate with a first major surface as a negative impression replica of the mold;
- (c) fusing the polymeric substrate with the channels formed therein to a solid support;
- (d) forming a plurality of electrodes positioned in a spatially-dispersed array within each channel, wherein ~~at least some anodes or cathodes are disposed in the central region of a channel~~ the array comprises a plurality of electrodes defining a perimeter of the array and at least one electrode disposed in a central region within the perimeter of the array, such that the electrodes can generate electric fields in at least two non-parallel directions within a plane parallel to the first major surface of the substrate.

30. (Previously Presented) The method for manufacturing a microelectrophoresis chip according to claim 29, wherein each separation channel is from 1 to 10 $\mu$ m in depth.

31. (Previously Presented) The method for manufacturing a microelectrophoresis chip according to claim 29, wherein the chip has a plurality of separation channels.

32-33. (Canceled)

34. (Previously Presented) The method for manufacturing a microelectrophoresis chip according to claim 24, further comprising filing each channel with a homogeneous separation medium including water soluble fullerenes.

35. (Currently Amended) The method for manufacturing a microelectrophoresis chip according to claim 24, further comprising filing each channel with a homogeneous separation medium including ~~self-assembly dendrimers~~ self-assembling dendrimers.

36. (Previously Presented) The method for manufacturing a microelectrophoresis chip according to claim 29, further comprising filing each channel with a homogeneous separation medium including water soluble fullerenes.

37. (Currently Amended) The method for manufacturing a microelectrophoresis chip according to claim 29, further comprising filing each channel with a homogeneous separation medium including ~~self-assembly dendrimers~~ self-assembling dendrimers.

38. (New) The method according to claim 24, wherein the array comprises a plurality of electrodes disposed in a central region of the array.

39. (New) The method according to claim 29, wherein the array comprises a plurality of electrodes disposed in a central region of the array.